THE CLAIMS

1. A prodrug comprising:

(a) at least one therapeutic compound; and

(b) one or more PEG polymers and/or oligomers, each joined to a bonding site on the therapeutic compound by a hydrolyzable bond, said PEG polymers and/or oligomers each:

(i) comprising a straight or branched PEG segment consisting of 2 to 25 polyethylene glycol units; and

(ii) optionally comprising a salt-forming moiety.

2. The prodrug of claim 1 wherein the one or more PEG polymers and/or oligomer(s) each consists essentially of from 2 to 20 polyethylene glycol units.

3. The prodrug of claim 1 wherein the one or more PEG polymers and/or oligomer(s) each consists essentially of from 2 to 15 polyethylene glycol units.

4. The prodrug of claim 1 wherein the one or more PEG polymers and/or oligomer(s) each consists essentially of from 2 to 10 polyethylene glycol units.

5. The prodrug of claim 1 wherein the polyethylene glycol oligomer has a number of polyethylene glycol units selected from the group consisting of 1, 2, 3, 4, 5, 6, 7, 8, and 9.

6. The prodrug of claim 1 wherein at least one of the one or more PEG polymers and/or oligomer(s) comprises a salt-forming moiety.

7. The prodrug of claim 6 wherein the salt-forming moiety is selected from the group consisting of: ammonium, hydrogen, sodium, potassium, lithium, calcium, carboxylate, chloride, bromide, iodide, phosphate, sulfate and mesylate.

8. The prodrug of claim 1 wherein the therapeutic compound comprises etoposide.

9. The prodrug of claim 1 wherein the therapeutic compound comprises a etoposide analog which retains some or all of the therapeutic activity of etoposide.

10. The prodrug of claim 1 wherein the therapeutic compound is derivatized by 1, 2, 3 or 4 of the polyethylene glycol oligomer(s).

11. The prodrug of claim 1 which, when delivered via the oral route of administration, provides a therapeutically effective dose of the therapeutic compound to the blood.

12. A pharmaceutical composition comprising:

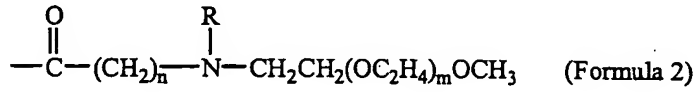
(a) a prodrug of claim 1; and

(b) a pharmaceutically acceptable carrier.

13. The pharmaceutical composition of claim 12 in a form suitable for oral administration.

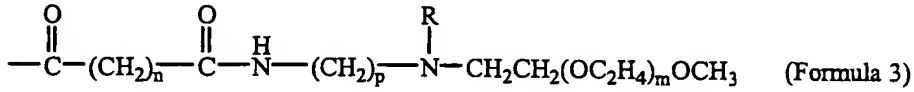
14. The pharmaceutical composition of claim 12 in a form selected from the group consisting of: tablets, capsules, caplets, gelcaps, pills, liquid solutions, suspensions or elixirs, powders, lozenges, micronized particles and osmotic delivery systems.

15. A prodrug comprising a therapeutic compound joined by hydrolyzable bond(s) to one or more PEG oligomer(s) selected from the group consisting of:



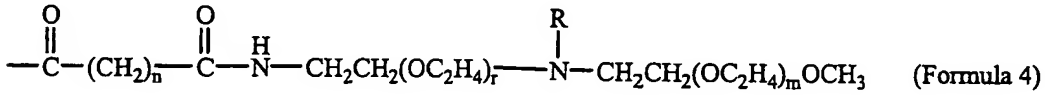
(Formula 2)

wherein n is from 1 to 7, m is from 2 to 25, and R is a lower alkyl;



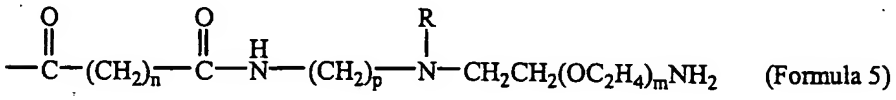
(Formula 3)

wherein n is from 1 to 6, p is from 2 to 8, m is from 2 to 25, and R is a lower alkyl;



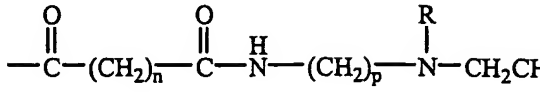
(Formula 4)

wherein n is from 1 to 6, m and r are each independently from 2 to 25, and R is a lower alkyl;



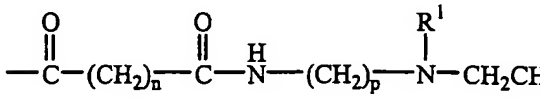
(Formula 5)

wherein n is from 1 to 6, p is from 2 to 8 and m is from 2 to 25 and R is a lower alkyl;



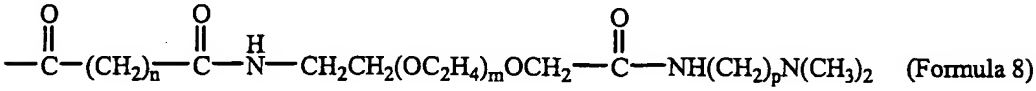
(Formula 6)

wherein n is from 1 to 6, p is from 2 to 8, m is from 2 to 25, X^- is a negative ion;



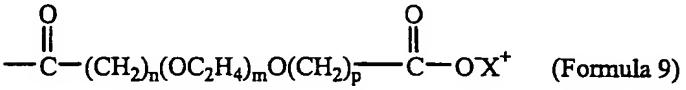
(Formula 7)

wherein n is from 1 to 6, p is from 2 to 8, m is from 2 to 25, and R^1 and R^2 are each independently a lower alkyl;



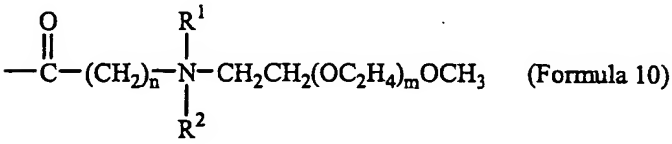
(Formula 8)

wherein n is from 1 to 6, p is from 2 to 8 and m is from 2 to 25;



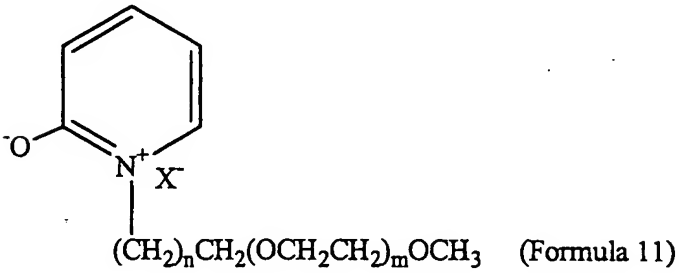
(Formula 9)

wherein n and p are each independently from 1 to 6, m is from 2 to 25 and X^+ is a positive ion;



(Formula 10)

wherein n is from 1 to 5, m is from 2 to 25, and wherein R1 and R2 are each independently lower alkyl; and



(Formula 11)

wherein n is from 1 to 6, m is from 2 to 25 and X^- is a negative ion.

16. The prodrug of claim 15 wherein one or more of the polyethylene glycol oligomer(s) comprises a salt-forming moiety.

17. The prodrug of claim 16 wherein the salt-forming moiety is selected from the group consisting of: ammonium, hydrogen, sodium, potassium, lithium, calcium, carboxylate, chloride, bromide, iodide, phosphate, sulfate and mesylate.

18. The prodrug of claim 15 wherein the therapeutic compound comprises etoposide.

19. The prodrug of claim 15 wherein the therapeutic compound comprises etoposide analog which retains some or all of the therapeutic activity of etoposide.

20. The prodrug of claim 15 wherein the therapeutic compound is derivatized by 1, 2, 3 or 4 of the polyethylene glycol oligomer(s).

21. A pharmaceutical composition comprising:

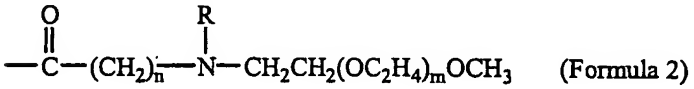
(a) a prodrug of claim 15; and

(b) a pharmaceutically acceptable carrier.

22. The pharmaceutical composition of claim 21 in a form suitable for oral administration.

23. The pharmaceutical composition of claim 21 in a form selected from the group consisting of: tablets, capsules, caplets, gelcaps, pills, liquid solutions, suspensions or elixirs, powders, lozenges, micronized particles and osmotic delivery systems.

24. The prodrug of claim 15 wherein the therapeutic compound is joined by hydrolyzable bond(s) to one or more PEG oligomer(s) having the formula:



(Formula 2)

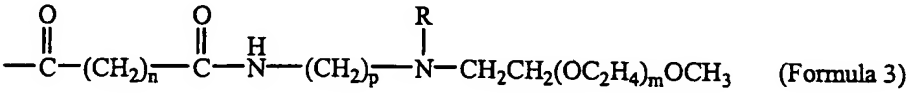
wherein n is from 1 to 7, m is from 2 to 25, and R is a lower alkyl.

25. The prodrug of claim 24 wherein the therapeutic compound comprises etoposide.

26. The prodrug of claim 24 wherein the therapeutic compound comprises a etoposide analog which retains some or all of the therapeutic activity of etoposide.

27. The prodrug of claim 24 wherein the therapeutic compound is derivatized by 1, 2, 3 or 4 of the polyethylene glycol oligomer(s).

28. The prodrug of claim 15 wherein the therapeutic compound is joined by hydrolyzable bond(s) to one or more PEG oligomer(s) having the formula:



(Formula 3)

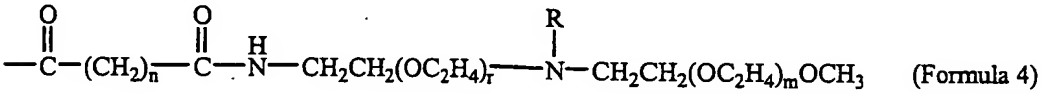
wherein n is from 1 to 6, p is from 2 to 8, m is from 2 to 25, and R is a lower alkyl.

29. The prodrug of claim 28 wherein the therapeutic compound comprises etoposide.

30. The prodrug of claim 28 wherein the therapeutic compound comprises a etoposide analog which retains some or all of the therapeutic activity of etoposide.

31. The prodrug of claim 28 wherein the therapeutic compound is derivatized by 1, 2, 3 or 4 of the polyethylene glycol oligomer(s).

32. The prodrug of claim 15 wherein the therapeutic compound is joined by hydrolyzable bond(s) to one or more PEG oligomer(s) having the formula:



(Formula 4)

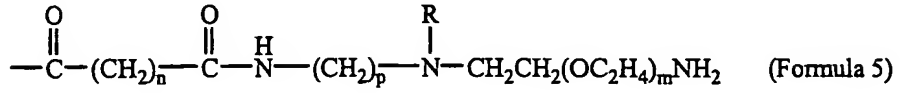
wherein n is from 1 to 6, m and r are each independently from 2 to 25, and R is a lower alkyl.

33. The prodrug of claim 32 wherein the therapeutic compound comprises etoposide.

34. The prodrug of claim 32 wherein the therapeutic compound comprises a etoposide analog which retains some or all of the therapeutic activity of etoposide.

35. The prodrug of claim 32 wherein the therapeutic compound is derivatized by 1, 2, 3 or 4 of the polyethylene glycol oligomer(s).

36. The prodrug of claim 15 wherein the therapeutic compound is joined by hydrolyzable bond(s) to one or more PEG oligomer(s) having the formula:



(Formula 5)

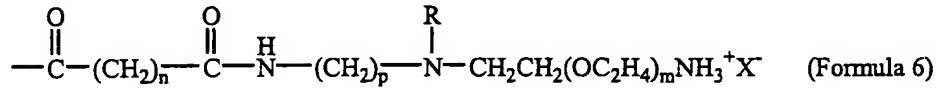
wherein n is from 1 to 6, p is from 2 to 8 and m is from 2 to 25 and R is a lower alkyl.

37. The prodrug of claim 36 wherein the therapeutic compound comprises etoposide.

38. The prodrug of claim 36 wherein the therapeutic compound comprises a etoposide analog which retains some or all of the therapeutic activity of etoposide.

39. The prodrug of claim 36 wherein the therapeutic compound is derivatized by 1, 2, 3 or 4 of the polyethylene glycol oligomer(s).

40. The prodrug of claim 15 wherein the therapeutic compound is joined by hydrolyzable bond(s) to one or more PEG oligomer(s) having the formula:



(Formula 6)

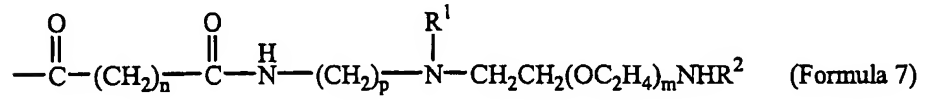
wherein n is from 1 to 6, p is from 2 to 8, m is from 2 to 25, X^- is a negative ion.

41. The prodrug of claim 40 wherein the therapeutic compound comprises etoposide.

42. The prodrug of claim 40 wherein the therapeutic compound comprises a etoposide analog which retains some or all of the therapeutic activity of etoposide.

43. The prodrug of claim 40 wherein the therapeutic compound is derivatized by 1, 2, 3 or 4 of the polyethylene glycol oligomer(s).

44. The prodrug of claim 15 wherein the therapeutic compound is joined by hydrolyzable bond(s) to one or more PEG oligomer(s) having the formula:



(Formula 7)

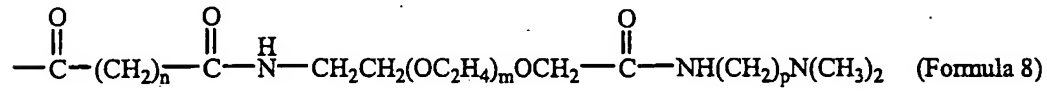
wherein n is from 1 to 6, p is from 2 to 8, m is from 2 to 25, and R^1 and R^2 are each independently a lower alkyl.

45. The prodrug of claim 44 wherein the therapeutic compound comprises etoposide.

46. The prodrug of claim 44 wherein the therapeutic compound comprises a etoposide analog which retains some or all of the therapeutic activity of etoposide.

47. The prodrug of claim 44 wherein the therapeutic compound is derivatized by 1, 2, 3 or 4 of the polyethylene glycol oligomer(s).

48. The prodrug of claim 15 wherein the therapeutic compound is joined by hydrolyzable bond(s) to one or more PEG oligomer(s) having the formula:



(Formula 8)

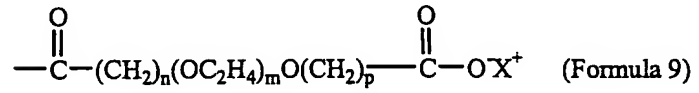
wherein n is from 1 to 6, p is from 2 to 8 and m is from 2 to 25.

49. The prodrug of claim 48 wherein the therapeutic compound comprises etoposide.

50. The prodrug of claim 48 wherein the therapeutic compound comprises a etoposide analog which retains some or all of the therapeutic activity of etoposide.

51. The prodrug of claim 48 wherein the therapeutic compound is derivatized by 1, 2, 3 or 4 of the PEG oligomer(s).

52. The prodrug of claim 15 wherein the therapeutic compound is joined by hydrolyzable bond(s) to one or more PEG oligomer(s) having the formula:



(Formula 9)

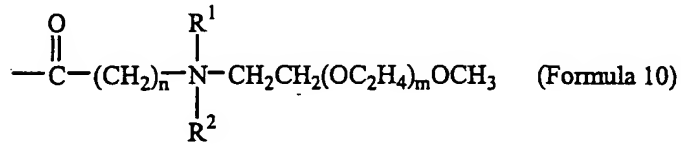
wherein n and p are each independently from 1 to 6, m is from 2 to 25 and X^+ is a positive ion.

53. The prodrug of claim 52 wherein the therapeutic compound comprises etoposide.

54. The prodrug of claim 52 wherein the therapeutic compound comprises a etoposide analog which retains some or all of the therapeutic activity of etoposide.

55. The prodrug of claim 52 wherein the therapeutic compound is derivatized by 1, 2, 3 or 4 of the PEG oligomer(s).

56. The prodrug of claim 15 wherein the therapeutic compound is joined by hydrolyzable bond(s) to one or more PEG polymers and/or oligomer(s) having the formula:



(Formula 10)

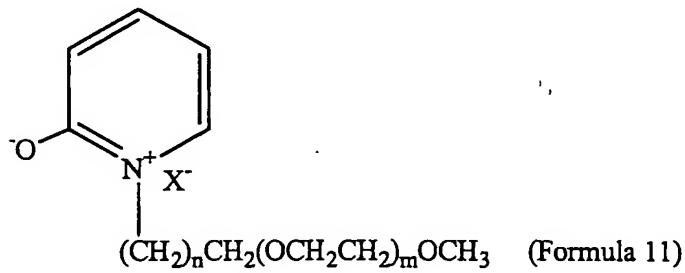
wherein n is from 1 to 5, m is from 2 to 25, and wherein R1 and R2 are each independently lower alkyl.

57. The prodrug of claim 56 wherein the therapeutic compound comprises etoposide.

58. The prodrug of claim 56 wherein the therapeutic compound comprises a etoposide analog which retains some or all of the therapeutic activity of etoposide.

59. The prodrug of claim 56 wherein the therapeutic compound is derivatized by 1, 2, 3 or 4 of the PEG oligomer(s).

60. The prodrug of claim 15 wherein the therapeutic compound is joined by hydrolyzable bond(s) to one or more PEG oligomer(s) having the formula:



(Formula 11)

wherein n is from 1 to 6, m is from 2 to 25 and X^- is a negative ion.

61. The prodrug of claim 60 wherein the therapeutic compound comprises etoposide.

62. The prodrug of claim 60 wherein the therapeutic compound comprises a etoposide analog which retains some or all of the therapeutic activity of etoposide.

63. The prodrug of claim 60 wherein the therapeutic compound is derivatized by 1, 2, 3 or 4 of the PEG oligomer(s).

64. A method of treating a mammalian subject having a disease condition responsive to a therapeutic compound, said method comprising administering to the subject of an effective disease treating amount of a prodrug comprising:

(a) at least one therapeutic compound; and

(b) one or more PEG polymers and/or oligomers, each joined to a bonding site on the therapeutic compound by a hydrolyzable bond, said PEG polymers and/or oligomers each:

(i) comprising a straight or branched PEG segment consisting of 2 to 25 polyethylene glycol units; and

(ii) optionally comprising a salt-forming moiety.

65. The method of claim 64 wherein the one or more PEG polymers and/or oligomer(s) each consists essentially of from 2 to 20 PEG oligomer units.

66. The method of claim 64 wherein the one or more PEG polymers and/or oligomer(s) each consists essentially of from 2 to 15 PEG oligomer units.

67. The method of claim 64 wherein the one or more PEG polymers and/or oligomer(s) each consists essentially of from 2 to 10 PEG oligomer units.

68. The method of claim 64 wherein the PEG oligomer has a number of PEG oligomer units selected from the group consisting of 1, 2, 3, 4, 5, 6, 7, 8, and 9.

69. The method of claim 64 wherein at least one of the one or more PEG polymers and/or oligomer(s) comprises a salt-forming moiety.

70. The method of claim 69 wherein the salt-forming moiety is selected from the group consisting of: ammonium, hydrogen, sodium, potassium, lithium, calcium, carboxylate, chloride, bromide, iodide, phosphate, sulfate and mesylate.

71. The method of claim 64 wherein the therapeutic compound comprises etoposide.

72. The method of claim 64 wherein the therapeutic compound comprises a etoposide analog which retains some or all of the therapeutic activity of etoposide.

73. The method of claim 64 wherein the therapeutic compound is derivatized by 1, 2, 3 or 4 of the PEG oligomer(s).

74. The method of claim 64 wherein the prodrug is administered by a route of administration which comprises an oral route of administration.

75. The method of claim 64 wherein the prodrug is administered by a route of administration which comprises a parenteral route of administration.

76. The method of claim 64 wherein the prodrug is administered to the patient by a route of administration comprising a route selected from the group consisting of: intradermal, intramuscular, intraperitoneal, intravenous, subcutaneous, intraosseous, and intranasal.

77. The method of claim 64 wherein the disease condition is selected from the group consisting of cancers, tumors, and malignancies.

78. The method of claim 64 wherein the disease condition comprises a cancer.

79. The method of claim 64 wherein the disease condition comprises a condition selected from the group consisting of small cell lung cancer, non-small cell lung cancer, testicular cancer, lymphoma, leukemia, ovarian cancer, and gastric cancer.

80. The method of claim 64 wherein the prodrug is administered as a component of a pharmaceutical composition comprising:

(a) the prodrug; and

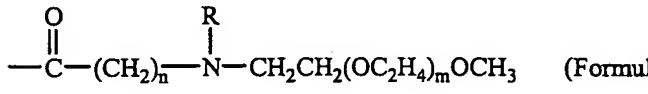
(b) a pharmaceutically acceptable carrier.

81. The method of claim 80 wherein the pharmaceutical composition is in a form suitable for oral administration.

82. The method of claim 80 wherein the pharmaceutical composition is in a form suitable for parenteral administration.

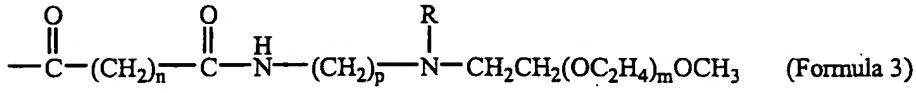
83. The method of claim 80 wherein the pharmaceutical composition is in a form selected from the group consisting of: tablets, capsules, caplets, gelcaps, pills, liquid solutions, suspensions or elixirs, powders, lozenges, micronized particles and osmotic delivery systems.

84. A method of treating a mammalian subject having a disease condition responsive to a therapeutic compound, said method comprising administering to the subject of an effective disease treating amount of a prodrug comprising the therapeutic compound joined by hydrolyzable bond(s) to one or more PEG oligomer(s) selected from the group consisting of:



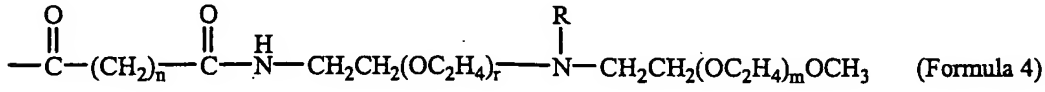
(Formula 2)

wherein n is from 1 to 7, m is from 2 to 25, and R is a lower alkyl;



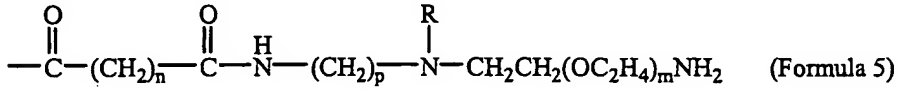
(Formula 3)

wherein n is from 1 to 6, p is from 2 to 8, m is from 2 to 25, and R is a lower alkyl;



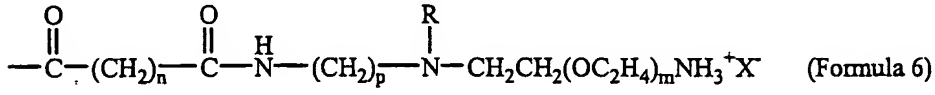
(Formula 4)

wherein n is from 1 to 6, m and r are each independently from 2 to 25, and R is a lower alkyl;



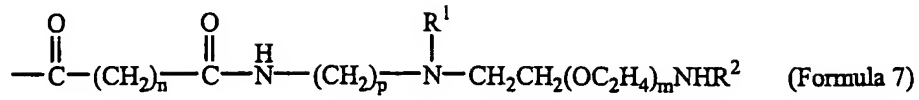
(Formula 5)

wherein n is from 1 to 6, p is from 2 to 8 and m is from 2 to 25 and R is a lower alkyl;



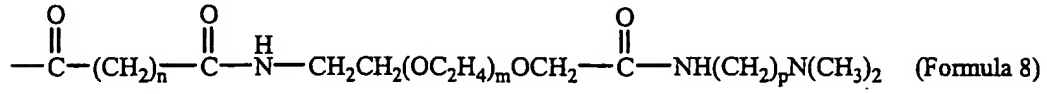
(Formula 6)

wherein n is from 1 to 6, p is from 2 to 8, m is from 2 to 25, X^- is a negative ion;



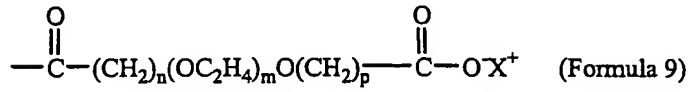
(Formula 7)

wherein n is from 1 to 6, p is from 2 to 8, m is from 2 to 25, and R1 and R2 are each independently a lower alkyl;



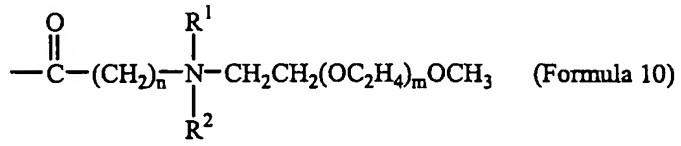
(Formula 8)

wherein n is from 1 to 6, p is from 2 to 8 and m is from 2 to 25;



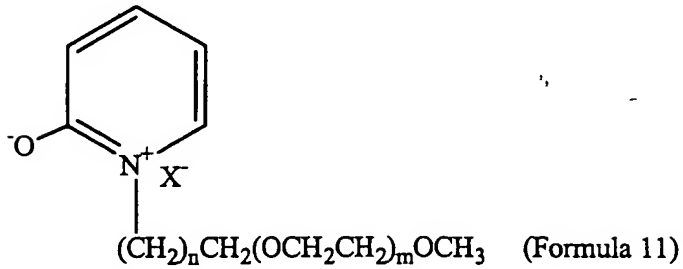
(Formula 9)

wherein n and p are each independently from 1 to 6, m is from 2 to 25 and X+ is a positive ion;



(Formula 10)

wherein n is from 1 to 5, m is from 2 to 25, and wherein R1 and R2 are each independently lower alkyl;



(Formula 11)

wherein n is from 1 to 6, m is from 2 to 25 and X^- is a negative ion.

85. The method of claim 84 wherein the one or more PEG oligomer(s) each has from 2 to 8 PEG units.

86. The method of claim 84 wherein the one or more PEG oligomer(s) each has from 2 to 6 PEG oligomer units.

87. The method of claim 84 wherein the one or more PEG oligomer(s) each has 2, 3, 4 or 5 PEG oligomer units.

88. The method of claim 84 wherein wherein one or more of the the PEG oligomer(s) comprises a salt-forming moiety.

89. The method of claim 88 wherein wherein the PEG oligomer comprises salt-forming moiety selected from the group consisting of ammonium, hydrogen, sodium, potassium, lithium, calcium, carboxylate, chloride, bromide, iodide, phosphate, sulfate and mesylate.

90. The method of claim 84 wherein the therapeutic compound comprises etoposide and the disease condition is an etoposide responsive disease condition.

91. The method of claim 84 wherein the therapeutic compound comprises a etoposide analog which retains some or all of the therapeutic activity of etoposide and the disease condition is an etoposide responsive disease condition.

92. The method of claim 84 wherein the therapeutic compound is derivatized by 1, 2, 3 or 4 of the PEG oligomer(s).

93. The method of claim 84 wherein the prodrug is delivered by a route of administration which comprises an oral route of administration.

94. The method of claim 84 wherein the prodrug is delivered by a route of administration which comprises an parenteral route of administration.

95. The method of claim 84 wherein the prodrug is administered to the patient by a route selected from the group consisting of: intradermal, intramuscular, intraperitoneal, intravenous, subcutaneous, intraosseous, and intranasal.

96. The method of claim 84 wherein the disease condition is selected from the group consisting of cancers, tumors and malignancies.

97. The method of claim 84 wherein the disease condition comprises a condition selected from the group consisting of small cell lung cancer, non-small cell lung cancer, testicular cancer, lymphoma, leukemia, ovarian cancer, and gastric cancer.

98. The method of claim 84 wherein the prodrug is administered as a component of a pharmaceutical composition comprising:

(a) the prodrug; and

(b) a pharmaceutically acceptable carrier.

99. The method of claim 98 wherein the pharmaceutical composition is formulated for oral administration.

100. The method of claim 98 wherein the pharmaceutical composition is formulated for parenteral administration.

101. The method of claim 98 wherein the pharmaceutical composition is in a dosage form selected from the group consisting of: tablets, capsules, caplets, gelcaps, pills, liquid solutions, suspensions or elixirs, powders, lozenges, micronized particles and osmotic delivery systems.